

NACA-Lewis Rocket Laboratory.

I. Facility Designation

Rocket Laboratory

Construction and Operation 1945

II. Purpose

A. To investigate:

Performance characteristics of rocket engine configurations, various designs of propellant injectors, and exit nozzles, ignition and combustion properties of propellants

B. Information gained

1. Engine thrust
2. Propellant feed pressures
3. Propellant flow rates
4. Propellant temperature
5. Combustion chamber pressure
6. Combustion temperature
7. Photographs of combustion processes

III. Structures

A. The rocket laboratory consists of the following numbered structures:

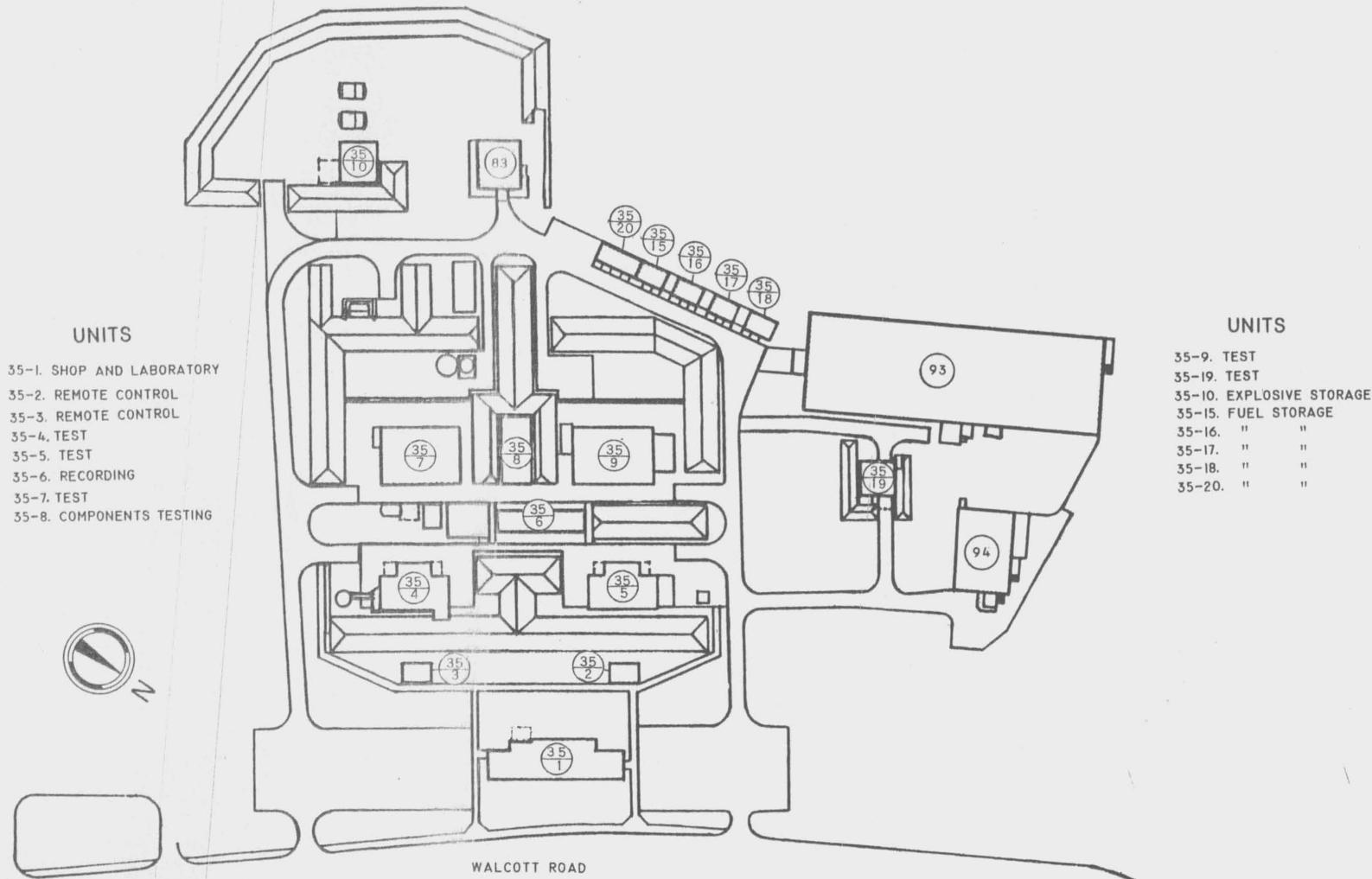
- 35-1, Office
- 2, Chemistry Lab
- 3, Remote Control
- 4, Test Cells 11, 12; 20' x 8' each
- 5, Test Cells 13, 14; 20' x 8' each
- 6, Instrument Bldg.
- 7, Test Cells 21, 22; 24' x 19' each
- 8, Shop
- 9, Test Cells, 23, 24; 24' x 19' each
- 10, Explosive Storage
- 11-18, Propellant Storage
- 19, Test Cell 31; 27' x 27'
- 20, Acid Storage
- 21, Hydrogen Liquefier Bldg.

B. All structures are one story buildings without basements. Test cell areas are isolated by earthen dikes. Propellant pumping is accomplished by high pressure helium or nitrogen from bottles. Power supply for the entire facility is 150 KW. 60 cycle, 220-volts. Air is supplied to the facility at 125 psig through a 2" pipe which is reduced to 1½" or 1½" depending on the requirements in each building.

IV. Operation

Engines are mounted horizontally, vertically (firing downward) or at an angle of 30° - 45° downward on parallelogram or flexure plate type thrust stands.

High pressure helium or nitrogen is regulated to the desired propellant tank pressure for the flow required.



UNITS

- 35-1. SHOP AND LABORATORY
- 35-2. REMOTE CONTROL
- 35-3. REMOTE CONTROL
- 35-4. TEST
- 35-5. TEST
- 35-6. RECORDING
- 35-7. TEST
- 35-8. COMPONENTS TESTING

UNITS

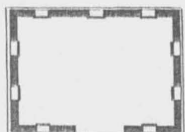
- 35-9. TEST
- 35-19. TEST
- 35-10. EXPLOSIVE STORAGE
- 35-15. FUEL STORAGE
- 35-16. " "
- 35-17. " "
- 35-18. " "
- 35-20. " "

WALCOTT ROAD

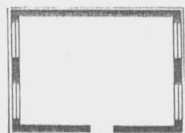
PLOT PLAN



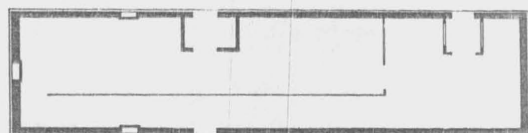
ROCKET LABORATORY AREA



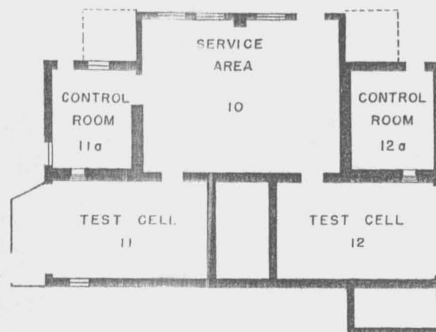
35-15, 16, 17, 18



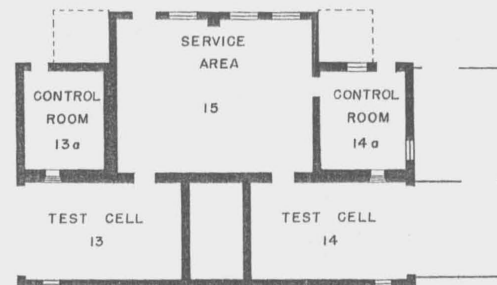
35-2, 3



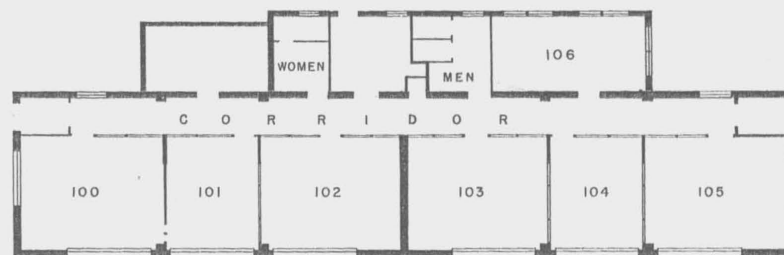
35-6



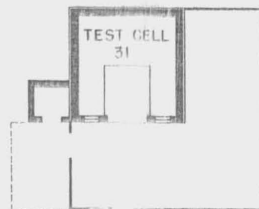
35-4



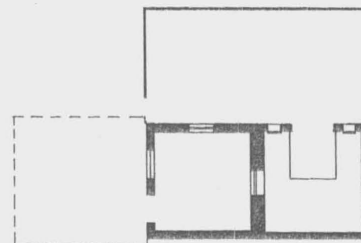
35-5



35-1



35-19



35-10

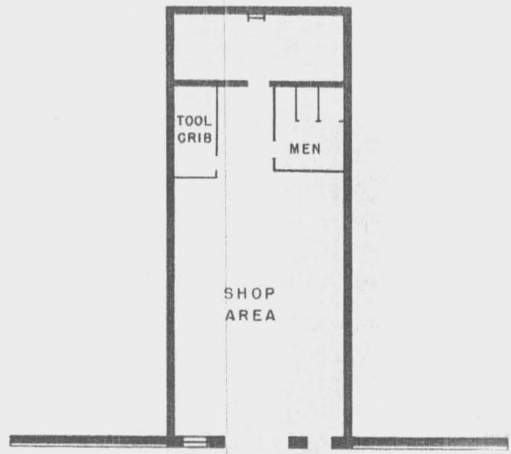


FLOOR PLANS

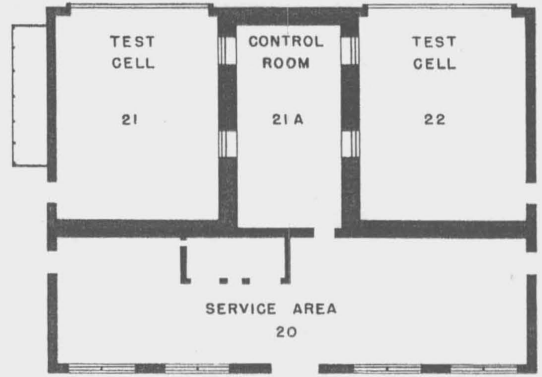
ROCKET LABORATORY

Structure No.

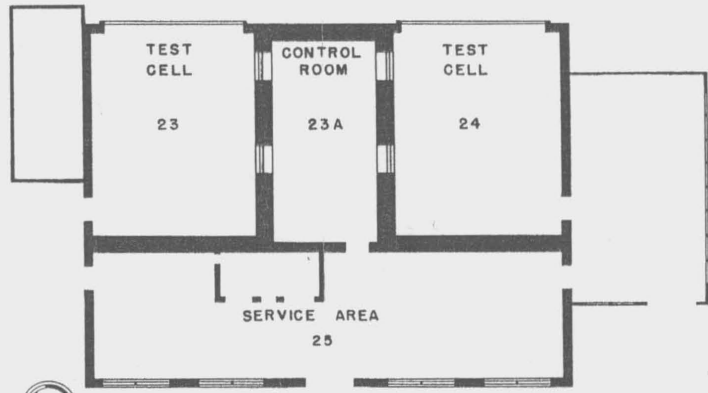
35



35-8



35-7



35-9



FLOOR PLANS

ROCKET LABORATORY



Structure No.